Serial No. 59594

APPLICATION FOR PERMISSION TO CHANGE POINT OF DIVERSION, MANNER OF USE AND PLACE OF USE OF THE PUBLIC WATERS OF THE STATE OF NEVADA HERETOFORE APPROPRIATED

Date of filing in State Engineer's Office DEC 07 1993

Returned to applicant for correction JAN 24 1994

Corrected application filed Map filed FEB 11 1994 under 59592

The applicant SODA LAKE RESOURCES PARTNERSHIP
BLDG ONE, SUITE 255
4000 KRUSE WAY PLACE of LAKE OSWEGO
Street and No. or P.O. Box No. City or Town
OREGON 97035 hereby make application for permission to change the
State and Zip Code No.
POINT OF DIVERSION AND PLACE OF USE OF A PORTION
Point of diversion, manner of use, and/or place of use
of water heretofore appropriated under PERMIT NO. 28881
Identify existing right by Permit, Certificate, Proof or Claim Nos. If Decreed, give title of Decree and identify right in Decree.

1. The source of water is UNDERGROUND
Name of stream, lake, underground spring or other source.
2. The amount of water to be changed 2.5 cfs
Second feet, acre feet. One second foot equals 448.83 gallons per minute.
3. The water to be used for INDUSTRIAL AND DOMESTIC
Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.
4. The water heretofore permitted for INDUSTRIAL AND DOMESTIC
Irrigation, power, mining, industrial, etc. If for stock state number and kind of animals.
5. The water is to be diverted at the following point WITHIN THE SE¼NE¼ SECTION 33, T20N, R28E,
Describe as being within a 40-acre subdivision of public survey and by course and distance to a section corner. If on unsurveyed land, it should be stated.
MDM, OR AT A POINT FROM WHICH THE EAST ONE-QUARTER CORNER OF SAID SECTION 33 BEARS S 62° 24' 35" E A DISTANCE OF 721.5 FEET. (WELL 84-33A)
6. The existing permitted point of diversion is located within SE¼SE¼ SECTION 29, T20N, R28E,
If point of diversion is not changed, do not answer.
MDM, 660' NORTH AND 660'WEST OF THE SE CORNER OF SAID SECTION AT A POINT FROM WHICH THE SE CORNER OF SAID SECTION 29 BEARS S.45°00'E. AT A DISTANCE OF 1100.0 FEET.
7. Proposed place of use SEE ATTACHMENT I
Describe by legal subdivisions. If for irrigation state number of acres to be irrigated.
8. Existing place of use WITHIN SECTIONS 19, 20, 21, 28, 29, 30, 31, 32 and 33,
Describe by legal subdivisions. If permit is for irrigation, state number of acres irrigated. If changing place of use and/or manner of use of irrigation permit, describe acreage to be removed from irrigation.
ALL IN T20N, R28E, MDM
9. Use will be from JANUARY 1 to DECEMBER 31 of each year.
Month and Day Month and Day
10. Use was permitted from JANUARY 1 to DECEMBER 31 of each year.
Month and Day Month and Day
11. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) GEOTHERMAL WELL NO. 84-33A, WELLHEAD
State manner in which water is to be diverted, i.e. diversion structure, ditches, pipes and flumes, or drilled well, etc.
EQUIPMENT, PUMP AND 10" to 20" CARBON STEEL PIPELINES TO POWER PLANT
12. Estimated cost of works $1,384,000
13. Estimated time required to construct works EXISTING WELL-SEE ATTACHED COMPLETION DIAGRAM FOR DETAILS

14. Estimated time required to complete the application of water to beneficial use 10 YEARS, SEE ATTACHMENT II

15. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use:

PRODUCED GEOTHERMAL RESOURCES USED TO OPERATE A POWER PLANT. SEE ATTACHMENT II- WATER WITHDRAWAL AND CONSUMPTION REQUIREMENTS.

SODA LAKE RESOURCES PARTNERSHIP
BY: AMOR 17 CORPORATION, IT'S MANAGING GENERAL PARTNER
By BY: THEODORE C. COOKE, V.P.
S/ T. COOKE
4000 KRUSE WAY PL, BLDG. ONE, SUITE 255
LAKE OSWEGO, OR 97035

Compared gkl/ jv cl/bk

Protested

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit to change the point of diversion and place of use of a portion of a geothermal fluid as heretofore granted under Permit 28881 is issued subject to the terms and conditions imposed in said Permit 28881 and with the understanding that no other rights on the source will be affected by the change proposed herein.

It is understood that the amount of geothermal fluid herein granted is only a temporary allowance and that the final right obtained under this permit will be dependent upon the amount actually placed to beneficial use. It is also understood that this right must allow for a reasonable decrease of fluid pressure and heat. The well shall be equipped and maintained to prevent any waste of the geothermal fluid. Accurate measurements must be kept of discharge of the production well and the amount of fluid injected into the injection well to determine the total amount of fluid diverted and consumed for a beneficial use.

The production and injection wells are to be cemented from the producing levels to the surface to protect fresh water zones. This permit is issued subject to the condition that only geothermal fluids are to be diverted and used beneficially for heating purposes and fresh, cold water aquifers are not to be diverted. The used geothermal fluids are to be returned to the source via the injection well. The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies. A detailed log on the injection well and/or other analyses of the system used for returning the used geothermal fluids to the source must be submitted together with the Proof of Completion.

(CONTINUED ON PAGE 2)

The amount of water to be changed shall be limited to the amount which can be applied to beneficial use, and not to exceed 2.5 cubic feet per second.

Work must be prosecuted with reasonable diligence and be completed on or before October 24, 1996

Proof of completion of work shall be filed before November 24, 1996

Application of water to beneficial use shall be made on or before October 24, 1997

Proof of the application of water to beneficial use shall be filed on or before November 24, 1997

Map in support of proof of beneficial use shall be filed on or before N/A

Completion of work filed DEC 23 1996

Proof of beneficial use filed OCT 23 1997

Cultural map filed

Certificate No. 14805 Issued DEC 30 1997

IN TESTIMONY WHEREOF, I, R. MICHAEL TURNIPSEED, P.E. State Engineer of Nevada, have hereunto set my hand and the seal of my office, this 24th day of October, A.D. 19 96

R. Michael Turnipseed P.E.
State Engineer

(PERMIT TERMS CONTINUED)

An annual report for this well must be filed under this permit describing the amount of geothermal fluid diverted and consumed to a beneficial use for the calendar year. This report must detail the amount of fluid produced and injected.

The total withdrawal of the geothermal fluid shall be limited to 1809.9 acre-feet per year but the total consumptive use of the geothermal fluid is limited to only incidental fluid losses in the system and in no case shall it amount to more than 5 percent of the volume withdrawn annually. The State Engineer does not waive the right to make a determination of incidental fluid losses at any time and impose additional conditions thereto. This permit is further issued subject to the provisions of NRS 533.372(1) and with the understanding that the power or energy generated by the beneficial use of this water or steam is subject to recapture and use within the boundaries of the State of Nevada when the need arises.

This permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

ATTACHMENT I

SODA LAKE 1 AND 2 GEOTHERMAL PROJECTS
NEVADA DIVISION OF WATER RESOURCES

WATER APPROPRIATION PERMITS - PLACE OF USE

T19N, R28E, MDB&M

SECTION 3:	N/2
SECTION 4:	ALL EXCEPT N/2NW/4
SECTION 5:	ALL EXCEPT S/2SW/4

T20N, R27E, MDB&M

SECTION 25:	N/2NE/4
SECTION 36:	N/2

T20N, R28E, MDB&M

SECTION 14:	SW/4	SECTION 29:	ALL EXCEPT E/2NW/4
SECTION 15:	ALL	SECTION 30:	ALL
SECTION 16:	ALL	SECTION 31:	ALL EXCEPT N/2SW/4, W/2SE/4
SECTION 18:	SE/4	SECTION 32:	ALL
SECTION 20:	ALL	SECTION 33:	ALL
SECTION 21:	S/2	SECTION 34:	ALL
SECTION 22:	ALL	SECTION 35:	ALL EXCEPT SE/4
SECTION 23:	ALL		
SECTION 26:	ALL		
SECTION 27:	ALL		
SECTION 28:	ALL		

ATTACHMENT II

Soda Lake 1 and 2 Geothermal Projects

Nevada Division of Water Resources
Application to Change

Answers to Questions 14 and 15:

The Soda Lake 1 and 2 Geothermal Projects (Projects) are located in Churchill County and currently generate an average of 9.7 MW (net). At this time the estimated remaining life of the Projects is 26 years; however, it is anticipated that the Projects' area may be the subject of additional expansion within the near future and some level of development will continue for the life of the Projects.

Due to the nature of geothermal resource development for power production, the amount of geothermal fluid withdrawn, injected and consumed by the Projects is subject to continuous change over the life of the Project. For example, development and enhancement of the geothermal projection and injection capabilities for the existing Projects are ongoing. At current power production levels approximately 8.43 cfs of geothermal fluid are withdrawn and approximately 0.0013 cfs are consumed. Once the Projects are operating at full capacity, we estimate that approximately 13.3 cfs of geothermal fluid may be withdrawn and approximately 0.04 cfs may be consumed. If the Projects are expanded and modified as anticipated, approximately 26.6 cfs of geothermal fluid may be withdrawn and approximately 0.09 cfs may be consumed. If an unanticipated catastrophic event such as a blowout occurred, approximately an additional 1.13 cfs of geothermal fluid may be consumed. See the attached "Water Withdrawal and Consumption Requirements" chart for more specific data.

Because of the ongoing changes in the development and use of the geothermal resources, it is impossible to estimate exactly when, if ever, the permittee can prove a certain amount of water to beneficial use. As noted above, development and enhancement of the Project's geothermal resources and wellfield operations are still ongoing and will continue to some extent for the life of the Projects. As existing wells lose their production or injection capabilities, new wells may be drilled as replacements. The characteristics of each well may be different and thereby influence production, injection and consumption requirements. Also, if the anticipated expansion and modifications occur, more wells will be drilled, and geothermal fluid requirements may change over an even longer period of time (more than 26 years).

As noted in previous correspondence with the Division, the Projects also utilize sweetwater for cooling water purposes (under Permit Nos. 50381 and 51475). The Projects' sweetwater consumption requirements will also change as different geothermal wells are brought on- and off-line, as the Projects reach full capacity, and if expansion and modifications occur. Again, these changing water requirements are a reflection of the dynamic nature of geothermal resource development.

ATTACHMENT II
Application to Change

We have begun discussions with the Division to see if the Projects can obtain an "Order," instead of multiple individual permits, to provide the Projects with more flexibility to withdraw and consume varying amounts of fluid anywhere within the Projects' area. Because of the nature of geothermal resource development for power production and the existing permitting system for water rights, the Projects do not have the flexibility:

- to quickly change or expand the approved "points of diversion" as new wells are drilled and old wells are shut-in; or
- to quickly change the amount of fluid that can be withdrawn and consumed either from a well or from some other point within the Projects' area.

Also, because some consumption occurs after the fluids produced from two or more wells have been commingled in the power plants' piping system, it is impossible to measure exactly how much geothermal fluid is consumed from any one point of diversion. In addition, the instrumentation and related equipment for measuring geothermal fluid rates at the wellheads and power plants are designed to measure large rates of production and injection, e.g. 1,500 gallons/minute, and can not accurately measure a few gallons per minute of geothermal fluid consumption or loss here or there.

For all of reasons discussed above, we can not estimate when, if ever, the application of water to beneficial use can be completed. The attached chart gives estimates of the amounts of sweetwater and geothermal fluid that may be withdrawn or consumed by the Projects at various stages.

SODA LAKE 1 AND 2 GEOTHERMAL PROJECTS

WATER WITHDRAWAL AND CONSUMPTION REQUIREMENTS

FOR CONSIDERATION IN NEVADA DIVISION OF WATER RESOURCES' WATER APPROPRIATION PERMITS

SWEETWATER REQUIREMENTS[1] - Withdrawal and Consumption Rates:

Existing Projects Operating at Full Capacity:

0.9 cfs or approximately 200,000 lbs/hr

Existing Projects With Future Expansion and Modifications Operating at Full Capacity:

4.3 cfs or approximately 965,000 lbs/hr

GEOTHERMAL FLUID REQUIREMENTS[2] - Withdrawal Rates:

Existing Projects Operating at Full Capacity:

Four (4) Production Wells:

13.3 cfs or approximately 2,618,000 lbs/hr

Existing Projects With Future Expansion and Modifications Operating at Full Capacity:

With Additional Production Wells:

26.6 cfs or approximately 5,236,000 lbs/hr

GEOTHERMAL FLUID REQUIREMENTS - Consumption Rates:

Existing Projects Operating at Full Capacity:

Four (4) Production Wells:

0.038 cfs or approximately 7,400 lbs/hr

Miscellaneous:[3]

0.0005 cfs or approximately 100 lbs/hr

Total Consumption of Geothermal Fluid for the Existing Projects Operating at Full Capacity:

Approximately 0.04 cfs or approximately 7,500 lbs/hr[4]

Existing Projects With Future Expansion and Modifications Operating at Full Capacity:

With Additional production Wells:

0.08 cfs or approximately 14,700 lbs/hr

Miscellaneous:

0.005 cfs or approximately 1,000 lbs/hr

Total Consumption of Geothermal Fluid for the Existing Projects With Future Expansion and Modifications Operating at Full Capacity:

Approximately 0.09 cfs or approximately 15,700 lbs/hr[5/]

[1/] The Projects currently have Permit Nos. 50381 and 51475 which each allow 0.5 cfs of consumptive use; therefore, the Projects have a total of 1.0 cfs of consumptive use of sweetwater approved by NDWR.

The Projects currently have Permit No. 28881 which allows 10 cfs of consumptive use of geothermal fluid. Applications have been filed to divide this 10 cfs among four (4) geothermal production wells. The Projects also have Permit No. 41931/Certificate No. 13576 which appropriated 2.45 cfs for non-consumptive use.

Note: The calculations for geothermal fluid assume 1 gallon water = 7.33 lbs of geothermal fluid at a temperature of 370°F.

[3/] Miscellaneous consumption includes consumption from leakages, drainages, pump start-ups, flow testing and well cleanouts, and other occasional uses of geothermal fluid for plant operations.

[4/] These numbers do not include consumption that may occur during an unanticipated catastrophic event such as a blowout. If an event such as a blowout were to occur, 1.13 cfs or approximately 223,700lbs/hr may be consumed. These numbers assume 6,000 gpm for a duration of one month and averaged over one year.

[5/] Again, these numbers do not include consumption that may occur during an unanticipated catastrophic event such as a blowout. See footnote no. 4.